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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Artcle 36 and Rule 70)

Applicant's or agent's file reference OPP021318KR	**FOR FURTHER ACTION**	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. **PCT/KR2002/002430**	International filing date *(day/month/year)* 24 DECEMBER 2002 (24.12.2002)	Priority date *(day/month/year)* 27 DECEMBER 2001 (27.12.2001)
International Patent Classification (IPC) or national classification and IPC **IPC7 G03G 9/08**		
Applicant LG CHEM, LTD. et al		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 3 sheets, including this cover sheet.

   [X] This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

   These annexes consist of a total of 3 sheets.

3. This report contains indications relating to the following items:

   - I [X] Basis of the report
   - II [ ] Priority
   - III [ ] Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
   - IV [ ] Lack of unity of invention
   - V [X] Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
   - VI [ ] Certain documents cited
   - VII [ ] Certain defects in the international application
   - VIII [ ] Certain observations on the international application

Date of submission of the demamd	Date of completion of this report
28 JULY 2003 (28.07.2003)	06 APRIL 2004 (06.04.2004)
Name and mailing address of the IPEA/KR Korean Intellectual Property Office 920 Dunsan-dong, Seo-gu, Daejeon 302-701, Republic of Korea Facsimile No. 82-42-472-7140	Authorized officer SHIN, JU CHEOL Telephone No. 82-42-481-8156

Form PCT/IPEA/409 (cover sheet) (July 1998)

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International aplication No.
PCT/KR2002/002430

I. Basis of the report

1. With regard to the elements of the international application:*

- [ ] the international application as originally filed
- [X] the description:
  pages 1-24 , as originally filed
  pages _____ , filed with the demand
  pages _____, filed with the letter of _____
- [X] the claims:
  pages _____ , as originally filed
  pages _____ , as amended (together with any statment) under Article 19
  pages _____ , filed with the demand
  pages 25-27 , filed with the letter of 19/01/2004
- [ ] the drawings:
  pages _____ , as originally filed
  pages _____ , filed with the demand
  pages _____, filed with the letter of _____
- [ ] the sequence listing part of the description:
  pages _____ , as originally filed
  pages _____ , filed with the demand
  pages _____, filed with the letter of _____

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.
These elements were available or furnished to this Authority in the following language English which is

- [ ] the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- [X] the language of publication of the international application(under Rule 48.3(b)).
- [ ] the language of the translation furnished for the purposes of international preliminary examination(under Rules 55.2 and/ or 55.3).

3. With regard to any **nucleotide** and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- [ ] contained inthe international application in written form.
- [ ] filed together with the international application in computer readable form.
- [ ] furnished subsequently to this Authority in written form.
- [ ] furnished subsequently to this Authority in computer readable form
- [ ] The statement that the subsequently furnished written sequence listing does not go beyond the disc losure in the international applicationas as filed has been furinshed.
- [ ] The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. [X] The amendments have resulted in the cancellation of:
   - [ ] the description, pages _____
   - [X] the claims, Nos. 1
   - [ ] the drawings, sheet _____

5. [ ] This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box(Rule 70.2(c)).**

* *Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this opinion as "originally filed." and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).*

** *Any replacement sheet containing such amendments must be referred to under item I and annexed to this report.*

INTERNATIONAL PRELIMINARY EXAMINATION

International aplication No.
PCT/KR2002/002430

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	2-9	YES
	Claims		NO
Inventive step (IS)	Claims	2-9	YES
	Claims		NO
Industrial applicability (IA)	Claims	2-9	YES
	Claims		NO

2. Citations and explanations (Rule 70.7)

1. The present invention discloses a magnetic mono-component toner composition, which comprises: a) 100wt% of a magnetic toner particle comprising 30-80wt% of a binder resin, 20-70wt% of a magnetic component, and 0.15-4wt% of a charge control agent; b) 0.5-1.5wt% of a hydrophobic treated silica having a specific surface area of 20-80m2/g; c) 0.5-2.5wt% of a hydrophobic treated silica having a specific surface area of 130-230m2/g; and d) 0.3-1.5wt% of a metal oxide fine powder.

2. Reference is made to the following documents:

D1: JP 2000-75541 A
D2: JP 1998-333359 A
D3: JP 1999-305480 A
D4: JP 2000-206731 A

3. D1, which is considered to represent the most relevant state of the art, discloses a magnetic toner composition, which comprises: a) a magnetic toner particle comprising a binder resin, a magnetic component, and a charge control agent; b) a hydrophobic treated silica having a specific surface area of 20-90m2/g; c) a hydrophobic treated silica having a specific surface area of 50-150m2/g; and d) a metal oxide fine powder.

4. D2 provides a toner composition which contains at least a bonding resin, a colorant and a releasing agent. The THF-soluble component of the toner has at least one peak in the range of 1,000-2,000 and at least one peak in the range of 2,000-300,000 in the molecular weight distribution.

5. D3 is related to a black magnetic toner, wherein the surface of a magnetic iron oxide particulate powder having an average particle diameter of 0.055-0.95 μm is coated with an organosilane compound formed from an alkoxysilane.

6. D4 provides a toner composition which has toner particles containing a binding resin and a colorant and fine particles of an inorganic compound comprising a phosphoric acid compound. Ions of a metal selected from at least alkaline earth metals are contained as a cation constituting the inorganic compound.

7. Consequently, none of the documents cited in the ISR disclose the specific composition range of a toner. Hence, the subject-matter of claims 2-9 can be considered novel in the sense of PCT Article 33(2). Even though D1 discloses a toner composition similar to the present invention, the specific composition range of the present invention showing unexpected effects in flowability and chargeability is not disclosed in this document. For this reason, the subject-matter of claims 2-9 can be considered inventive in the sense of PCT Article 33(3). Besides, claims 2-9 relating to a magnetic mono-component toner composition are considered to be industrially applicable (Article 33(4) PCT).

WHAT IS CLAIMED IS:

1. **(deleted)**

2. **(amended)** A magnetic mono-component toner composition, which comprises:

a) 100wt% of magnetic toner particle comprising:

i) 30 to 80wt% of a binder resin (for 100wt% of magnetic toner particle);

ii) 20 to 70wt% of a magnetic component (for 100wt% of magnetic toner particle); and

iii) 0.15 to 4wt% of a charge control agent (for 100wt% of magnetic toner particle);

b) 0.5 to 1.5wt% of a hydrophobic treated silica having a specific surface area of 20 to 80m^2/g;

c) 0.5 to 2.5wt% of a hydrophobic treated silica having a specific surface area of 130 to 230m^2/g; and

d) 0.3 to 1.5wt% of a metal oxide fine powder.

3. **(amended)** The magnetic mono-component toner composition according to Claim 2, wherein a) i) the binder resin is one or more selected from the group consisting of polyester, poly(methyl acrylate), poly(ethyl acrylate), poly(butyl acrylate), poly(2-ethylhexyl acrylate), poly(lauryl acrylate), poly(methyl methacrylate), poly(butyl methacrylate), poly(hexyl methacrylate),

poly(2-ethylhexyl methacrylate), poly(lauryl methacrylate), a copolymer of acrylates and methacrylates, a copolymer of a styrene monomer and acrylates or methacrylates, poly(vinyl acetate), poly(vinyl propionate), poly(vinyl lactate), polyethylene, polypropylene, a styrene butadiene copolymer, a styrene isoprene copolymer, a styrene maleic acid copolymer, poly(vinyl ether), poly(vinyl ketone), , polyamide, polyurethane, rubber, epoxy resin, poly(vinyl butyral) rosin, a modified rosin, and a phenol resin, which are obtained by condensation or addition polymerization of alcohol components and carboxylic acid components.

4. **(amended)** The magnetic mono-component toner composition according to Claim 2, wherein a) ii) the magnetic component is one or more selected from the group consisting of alloys or mixtures of magnetite, hematite, ferrite, iron, cobalt, nickel, or manganese; ferromagnetic alloys; and a magnetic oxide.

5. **(amended)** The magnetic mono-component toner composition according to Claim 2, wherein a)iii) the charge control agent is a metal complex azo dye or a salicylic acid compound for a negative charged toner, and a nigrosine dye or a quaternary ammonium salt for a positive charged toner.

6. **(amended)** The magnetic mono-component toner composition according to Claim 2, wherein a) the magnetic mono-component toner particle

further comprise iv) 0.05 to 5wt% of release agent for 100wt% of the binder resin.

7. **(amended)** The magnetic mono-component toner composition according to Claim 2, wherein average diameter of a) the toner particle is 5 to 30μm.

8. **(amended)** The magnetic mono-component toner composition according to Claim 2, wherein b) the hydrophobic treated silica having a specific surface area of 20 to 80m^2/g and c) the hydrophobic treated silica having a specific surface area of 130 to 230m^2/g are hydrophobic treated by coating or attaching a silane coupling agent or silicone oil on the silica particles.

9. **(amended)** The magnetic mono-component toner composition according to Claim 2, wherein d) the metal oxide fine powder is one or more mixtures selected from a group consisting of titanium dioxide, aluminum oxide, zinc oxide, magnesium oxide, cerium oxide, iron oxide, copper oxide, and tin oxide.